CENTER FOR ARMY LESSONS LEARNED

COMPENDIUM

FALL 88 **Vol I: Heavy Forces**

YEAR OF TRAINING

CATA Fort Leavenworth

COMPENDIUM
VOL I: HEAVY FORCES
NO. 88-3

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PREFACE

1. This is the first in a trilogy of Year of Training newsletters whose purpose is to publish enduring lessons learned from the Combat Training Centers (CTC) to the Army.

2. Until December 1987, the National Training Center (NTC) at Fort Irwin, California was the only operational CTC. Since then, the Joint Readiness Training Center (JRTC) at Fort Chaffee, AR and the Battle Command Training Program (BCTP) at Fort Leavenworth, KS have also come on line. Soon, the Combat Maneuver Training Center (CMTC) at Hohenfels, Germany will be fully operational. This newsletter discusses heavy force lessons which are considered to be of a long term value and are not unique to the desert environment. Lessons learned at the NTC for the heavy force are being validated in Europe as the CMTC ramps up to full operations. The next newsletter will cover light force lessons learned.

3. The mission of the NTC is to provide tough and realistic training to the Army and Air Force in mid- to high-intensity conflicts in accordance with Air Land Battle doctrine. The foundations of all CTCs are:

- Training objectives based on a unit's wartime mission
- The most realistic battlefield available in peacetime
- Well trained realistic opposing force
- Performance evaluation and feedback through:
  - ** Instrumented observation
  - ** Doctrinally proficient observer/controllers who provide immediate after action reviews
- Tactical lessons learned to the Army worldwide

4. CALL's intent is to help units improve their home station training program and assist their preparation for combat operations. If your unit has identified any combat relevant lessons learned at any training exercise, share them with the rest of the Army by contacting the Center for Army Lessons Learned, AV 552-2132.

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TRAINING

I. Notes from the Chief of Staff of the Army: How to Train--The Value of the After Action Review

"Training begins when the commander of a unit makes his analysis of the wartime missions of his unit: what it must do, how it must do it, and with which resources.

"This analysis forms the basis for the next step: the commander's assessment of the unit's ability to perform the specific tasks derived from the wartime mission. Typical indicators are readiness reports, results of previous inspection, and evaluations of past training.

"The unit's demonstrated ability to perform the specific tasks associated with the wartime mission provides the basis for the selection of the tasks, conditions, and standards which constitute the unit's training objectives.

"Finally, the effectiveness of the training is addressed in after action reviews, in which the unit members collectively assess their success in meeting the prescribed training objectives. These reviews are the key element of the feedback process that then folds back into the training cycle as the commander reassesses what must be done next. If training is conceived this way, it provides a purpose which then drives everything else--planning, administration, and execution. Above all, training must strive for a predetermined standard of both individual and unit excellence. This is not only the key to fulfilling the mission, but it is crucial if we are to recruit and retain quality soldiers. Leaders in both the active and reserve components have to seize every opportunity to train with a purpose and maximize the value of every precious minute that those opportunities give us. This is the essence of FM 25-100."

"The function of these reviews (AARs) is to provide the critical feedback loop which assesses how well the specified training objectives of the unit were met, what improvements still need to be made, and what objectives the unit ought to attain during the next training cycle. In order to be effective, the AAR has to be done on-site as soon as possible after the training has been concluded, it should be done orally, and it should be a freewheeling give-and-take in which soldiers candidly discuss their performance and lessons learned. This is an effective way to summarize and communicate what happens next time. Since the AAR is such an effective tool in the learning, I want to be sure that we are doing everything possible to bring it to the attention of our unit commanders and those who assist them in planning unit training. I encourage the use of FC 25-20, A Leader's Guide to After Action Reviews."

Carl E. Vuono
General, United States Army
Chief of Staff

INTELLIGENCE AND ELECTRONIC WARFARE

Lessons Learned: Intelligence Preparation of the Battlefield (IPB) Works and is Essential for Success on the Battlefield

Problem: Some brigade and task force commanders are unable to achieve an appropriate combat ratio after the battle begins due mainly to their lack of knowledge about the enemy situation. This is due to the staff's failure to confirm the situation template and a lack of synchronization with other staff members who do not understand the reporting system.

Successful Tactics, Techniques and Procedures

- The IPB drives tactical planning. The S2 is a key player, but IPB is not strictly an S2 function. The IPB process requires the involvement of the commander and his entire staff. Production of event and decision support templates requires participation by the S3, FSO, ADAO and Engineer at a minimum.

- Physical reconnaissance on the ground is necessary to confirm or refute the situation template. The situation template depicts suspected positioning of enemy elements and provides a basis for where to deploy the reconnaissance elements. The recon mission is to find the enemy and report this to the commander and S2. Any and all elements of the task force or brigade can help fill in missing elements of combat information through the reporting system, SALUTE, spot reports, etc., as they execute their mission.

- The S2 should address priority intelligence requirements (PIR) during the OPORD brief. These are items of combat information that help the S2 fill in the blank pieces of the intelligence puzzle. At a minimum, the S2 must update and disseminate the situation template confirmed by reconnaissance just prior to the firepower and maneuver options. Finally, develop the decision support template to form the basis for staff planning and wargaming.

- The commander's intent is the cornerstone to the rest of the IPB staff process. The S2 finalizes his collection plan against the commander's intent. This enables him to tell the commander:
  - what the enemy force opposing them is
  - where it's located
  - what kind of terrain they can expect
  - and other mission critical information

- Communicating the initial situation template during the OPORD process forces task force leaders to focus on the enemy's intent. A good technique for communicating the IPB is the use of large scale sketches to show expected enemy dispositions and actions.

- All key leaders and staff must realize that the IPB process never stops. Templates require continuous updating throughout all aspects of operational planning and execution. Notifying all key personnel of all significant changes is critical to the process. IPB is not a process separate and distinct from all the information toward answering certain questions relative to the ongoing mission.

Lessons Learned: Rapidly Recon as the First Offensive Priority

Problem: Recon is the basis for successful attacks. Eighty-three percent of units which recon effectively before deliberate attacks, win. Ninety percent of those that don't, lose. (Note: Effective recon is reporting enemy positions and obstacles in sufficient detail to confirm the IPB template by H-1.)

Effective recon takes time. To confirm the IPB template, the recon must identify (6-digit accuracy) approximately 80% of the enemy anti-tank systems. Dismounted observation posts normally provide the commander his best combat information. Recon elements must dismount to infiltrate the security zone. Scouts are recon patrols, not combat patrols, and should attempt to gain information through stealth. In general, scouts which engage the enemy don't provide intelligence, they die. Seventy-three percent of units which issue timely recon plans, attack successfully. Eighty-two percent of those that don't, fail.

Successful Tactics, Techniques, and Procedures to Maximize Recon Time

- Resupply recon assets first
  - Task forces typically don't adequately resupply their scouts. As a result, several days into an operation the scouts stop their recon/screen as they run out of fuel, etc. FM 17-98 addresses all the techniques to resupply the scouts who have no dedicated LOGPACS.

- Gain/Maintain contact with the enemy
  - Ideally, the task force scouts continually gain/maintain contact with the enemy. This provides the task force continual real time intelligence which speeds up the decision making process. Maintaining and gaining contact reduces susceptability to enemy deception measures.

♦ Rapidly issue the recon/surveillance (R/S) plan to recon assets.
- "Time is blood." Don't wait for the perfect situational template or the ideal tentative plan. Don't wait until the OPORD. Initiate recon now with minimal guidance.

♦ Use all recon assets (Don't overtask the scouts)
- Scouts can't do all the recon for a task force. Fifty percent of units which augment scouts to recon, win. Sixty percent of those that don't, lose. Scouts confirm the assumed weak point in the enemy defense. The task force then plans backwards to mass on this point. Task forces usually have more than two NAIs for area recon and one or more axis for route recon. As required, augment the scout platoon recon with:

--Infantry platoons (area recon)
--Company/Teams (route/zone recon)
--Army aviation
--Engineers (for technical expertise)
--Ground surveillance radars

Note: Sometimes a company/team with the scouts attached performs the recon mission.

♦ Provide redundant commo
- Task forces commonly lose communications with recon assets. Dedicate communications to all recon assets. Maintain communication with:

--Jump Command Post
--RETRANS
--Company team with scouts attached/assigned the recon mission
--RC292 or OE254 antennas given to the scouts

In addition to maximizing the use of all TF assets for reconnaissance, the task force commander must do his own personal recon if he is to truly "SEE" the battlefield. Complete familiarity with the terrain over which he must fight is a key ingredient for a commander's success at any level.

Lessons Learned: Maintain Security as the First Defensive Priority

Problem: Security is the basis for successful defenses. Seventy five percent of units which maintain security, win. Ninety three percent of those that don't, lose. Security involves defeating both mounted and dismounted enemy recon elements as well as good COMSEC. The dismounted elements (OPs) report the eight digit grid for every major anti-tank system in the task force through triangulation. So long as these OPs survive, the enemy commander easily sees the task force's weak point and exploits it. The enemy mounted elements confirm these positions during the final hours before the attack, since the enemy OPs don't have sophisticated night vision devices and can't track any repostioning during periods of reduced visibility.

Successful Tactics, Techniques and Procedures

- Security must be a state of mind. Everything that moves or acts/looks suspicious must be challenged or checked.
  - "Until we actually faced the NTC OPFOR recon, we had not spent the time to train a fully effective counter-recon force. Our home station OPFOR recon was not as effective as the NTC OPFOR recon," to quote a recent NTC battalion commander. Units employ minimal security because they don't understand the criticality of the task. All units must continually provide their own local security throughout the TF sector.

- Screen (identify/track) mounted enemy recon with dismounted OPs in depth and kill with indirect fire, if possible.

- Guard (destroy) mounted recon with tanks or BFVs.
  - To stop enemy mounted recon elements, you must identify, track, and destroy them. Normally, the scouts and ground surveillance radars screen, while a "guard" force destroys. Screening in depth with two thin screen lines is much more effective to identify and track than one screen line. Scout platoons employ a mix of dismounted and mounted (thermal) OPs. In some cases, a BFV scout platoon can perform both the screen and guard mission.

  - Commanders use varying sized guard/destruction elements based on METT-T. In general, these guard elements trade off combat power available to fight the main battle with certainty of destroying the enemy recon. A company/team, platoon, or reaction platoon all will work so long as the screen-guard coordination is strong. If possible, make engagement areas into free fire areas. Units tend to hold fire given excess movement in the task force area. The key is an integrated effort on a single net.

- Report of enemy recon on one avenue of approach should alert the commander that the remainder of his sector is also being reconnoitered.

- Locate dismounted enemy recon in the sector using aviation, electronic warfare support measures (ESM), and R/S patrols.

- Destroy dismounted recon elements (OPs) with artillery and reaction forces.

The combination of helicopters, ESM, and local security patrols best identifies dismounted recon (OPs). Units must employ all three means and rapidly respond to enemy OP sightings. All company/teams and the task force maintain reaction forces on five minute standby. Slow reaction allows the enemy ESM to alert and move the OPs before the reaction force arrives.

Lessons Learned: Effective Utilization of the Field Artillery Battalion S2

Problem: Task forces generally do not receive input from the DS battalion S2; conversely, the DS battalion S2 does not always receive IPB products from the task force.

Successful Tactics, Techniques and Procedures

- The DS artillery S2 should coordinate early detailed targeting intelligence with the brigade. He should use this information to develop targeting priorities for field artillery target acquisition assets. For example, the brigade S2's collection plan contains guidance relative to types of targets, vehicles, or enemy assets that are priority information requirements. The Q36 and TPS25 radar could concentrate on trying to pick up indications of these targets. The S2 must integrate both FA and maneuver target acquisition assets into the fire support plan/execution matrix. The artillery target acquisition assets are frequently left to operate independently of the combined arms effort after the battle begins, with no concerted effort or plan to use them to confirm pre-planned targets.

- The DS battalion commander and the task force or brigade commander should ensure coordination of their collection plans. This includes coordination locations of weapons locating radars, such as the Q36 and Q37, and moving target locating radar (MTLR). The S2s should share intelligence estimates and other IPB products, and interact more with other staff members from their own headquarters and the supported maneuver unit.

- The DS battalion S2 and the task force FSO can extract specific targets from the computer files by establishing a standing request for information. He can obtain additional data by establishing a message of interest (MOI) file that provides intelligence, fire support, and planning information. Therefore, the task force S2 also has access to this information.

- The VFMED located with the brigade and task force FSOs receives and prints information copies of fire mission requests and reports submitted by other fire support agencies within its zone. Brigade and task force fire support VFMEDs, in effect, share a common pool of target, tactical, and fire support-related information on an automatic basis. The maneuver S2 should actively seek this information. Consider calls for fire a spot report.

- Some of the most important information on the battlefield is combat intelligence derived from spot reports submitted by observers who see the battlefield in real time. Brigade S2s should press for combat intelligence derived from targets to integrate artillery assets into their intelligence collection plan.

- The DS battalion S-2 will have information requirements that need brigade S-2 support. This data is necessary to drive the artillery battalion's decision support template for battery movement.

MANEUVER

Lessons Learned: Use Dismounted Infantry in the Defense

Problem: Enemy infiltrators gather key intelligence and enemy and vehicle crewmen breach obstacles.

Successful Tactics, Techniques and Procedures

- Use dismounted infantry in observation posts (OPs) in depth forward of the FLOT to detect enemy infiltrators. Cover these OPs with the BFVs or tanks to gain the advantage of thermals at night and long range reinforcing fires. The OPs can kill enemy infiltrators preferably with indirect fire or alternately with responsive reaction forces or ambushes. Use the IPB process to site the OPs on likely infiltration routes. Integrate these OPs with local security OPs.

- Infantry positions with good grazing fire can cover likely enemy breach sites in obstacles with small arms fire and observed indirect fire. This precludes infiltrators or enemy vehicle crewmen from quickly breaching key obstacles. The result is the obstacle will force the enemy to do what we want him to do. A technique is to dig the infantry in near to the obstacle with strong overhead cover to protect against indirect fire. This greatly increases the range that small arms can keep enemy dismounts away from the obstacle.

- Another technique is to shape the battlefield using dismounted infantry strong points at chokepoints to force the enemy into prepared engagement areas. The strong points, if reinforced with obstacles and direct fire, can dissuade the enemy from attacking that point and force him where we want him to go.

Lessons Learned: Use Dismounted Infantry in the Offense

Problem: Units that don't use all available resources to confirm IPB templates allow enemy tanks to remain in defensive positions and kill large numbers of friendly vehicles. If the infantry assault is not synchronized with the mounted attack, a piecemeal attack results and is normally unsuccessful.

Successful Tactics, Techniques and Procedures

- In the attack, reconnaissance is vital. Dismounted infantry can use stealth, darkness, and restrictive terrain to reconnoiter enemy positions and obstacles. They find and mark obstacle bypasses, begin to breach, secure the breach site or conduct supporting attacks with the main mounted attack. Dismounted infantry owns the night.

- Dismounted OPs in key terrain can determine all anti-tank vehicle positions, obstacles, and enemy repositioning. They can use directional antennas to communicate this key intelligence back to the task force. Use more than one OP to observe a named area of interest.

- Use the "bird dog" technique to flush enemy tanks in rough terrain. Friendly tanks overwatch an area while dismounted infantry clears it. An enemy tank should be forced to choose between accepting a rear or flank shot from the infantry's DRAGON or attempting to outrun the overwatching tanks. The infantry can infiltrate before the attack begins or attack with the tanks.

- When using dismounted infantry in the offense, plan to use EW assets to find enemy indirect fire nets during the preparation phase. When dismounted infantry comes under indirect fire during execution, priority of jamming is the enemy indirect fire nets until the infantry breaks contact.

Lessons Learned: Shoot Them in the Back

Problem: Weapons sited in front of an advancing enemy are easy for him to acquire, suppress, and destroy. In addition, long range frontal shots are less effective due to the heavier frontal armor on enemy tanks.

Successful Tactics, Techniques and Procedures
Position tanks and anti-armor systems for flank and rear shots. This takes advantage of the need and natural tendency of enemy crews to focus their attention in the direction of travel. It presents the least armored areas of enemy vehicles to your weapons.

Reinforce terrain with obstacles and minefields with the objective of turning the enemy rather than stopping him. Mounted troops will try to bypass before trying to breach. One of their primary concerns is to maintain the forward momentum of the attack. Therefore, an oblique obstacle, which allows some movement forward and the hope of a bypass, will be more successful at exposing the enemy's flank to your guns. Summarized, you create a funnel and plan your fires to control access to the bypass points.

Reverse slope positions provide excellent cover from long range direct fires and an edge in killing the enemy. If the enemy comes over your hill, you can shoot him in the belly plate before he can get his guns depressed far enough to shoot back. If the enemy bypasses your hill, you will be in good position to fire and maneuver into his flank and rear.

Lessons Learned: Keep It Simple . . . Use Battle Drills

Problem: There are certain common combat situations, such as ambushes and meeting engagements, which require instantaneous actions to ensure survival and success.

Successful Tactics, Techniques and Procedures

- When units reinforce and refine company and below battle drills through repetitious training at home station, they provide soldiers with the instinctive reactions to an enemy action.

Lessons Learned: Use the Aviation Liaison Officer (AVN LNO)

Problem: Effective employment of attack helicopters in conjunction with ground forces requires detailed planning and coordination down to the lowest applicable level. The AVN LNO is the lynch-pin for air-ground interaction. He must have a thorough knowledge of the tactical situation to preclude aviation assets being sent into an unfamiliar situation at the height of the battle.

Successful Tactics, Techniques and Procedures

- The AVN LNO must be part of the brigade commander's staff training.
- The AVN LNO must understand armor and mechanized maneuver doctrine (FM 71-2, FM 71-3).
- The AVN LNO must involve the air mission commander in the brigade war gaming/planning process. All aviation leaders must know and understand the ground brigade commander's intent.
- Attack aviation needs locations of enemy platoons and companies "now" rather than a fix on battalions and regiments an hour ago. The AVN LNO must ensure the aviation task force commander is monitoring the brigade command and operations & intelligence (O&I) net or battalion task force/battalion command net. This ensures the timely flow of intelligence to aviation units on the shape and movement of the battlefield so they can correctly position their assets.
- During combat operations, the AVN LNO must "sell" the doctrinally correct use of aviation to the maneuver commander. Conversely, the maneuver commander must understand aviation's capabilities and limitations.
- To track the battle, some units have put the AVN LNO in the Air Force ALO's track. In this position, the Army AVN LNO is mobile and has direct access to the battalion or brigade commander during operations, in person, or on the radio. Additionally, the track has the radios to talk to all aviation elements and provides direct coordination with the ALO.
- The AVN LNO must track crew and equipment status and relay this information to the ground maneuver commander. Unlike armor and infantry units, aviation may require Class III and IV many times each day and in large quantities. The brigade must compensate for this resupply in the tactical plan. The efficient operation and careful positioning of Forward Arming and Refueling Points (FARPs) are critical to massing attack helicopters. Management of aviator crew endurance is a command function.

Lessons Learned: Task Units to Destroy Enemy in Specific Engagement Areas

Problem: Simultaneously positioning weapons/units, emplacing obstacles, digging in, and siting target reference points (TRPs) results in engagement areas and obstacles ineffectively covered by fire. On the average, less than half of friendly weapons engage the enemy.

Successful Tactics, Techniques and Procedures

- The defensive goal must be to destroy the enemy with massed fires. Mass fires by tasking units to destroy the enemy in specific engagement areas versus defending a battle position. Given this clear goal, leaders can easily position weapons/units to mass fires on the enemy. Only then can leaders precisely site obstacles which are effectively covered by fire. Leaders then rehearse the plan to confirm its validity and to ensure that subordinates understand the concept. As such, the most effective priority of work in the defense is normally to:
    1. Establish security
    2. Analyze mission
    3. Identify avenues of approach using IPB
    4. Use IPB to determine where/how to kill the enemy
    5. Site target reference points (TRPs) and engagement areas (EAs)
    6. Assign TRPs/EAs to units as their mission
    7. Site weapons, weapons systems and units based on their TRPs/EAs
    8. Site obstacles
    9. Rehearse to include fire support and repositioning of forces to confirm plan
    10. Dig in
    11. Emplace obstacles
    12. Rehearse buttoned up in MOPP 4 and at night
    13. Register indirect fires

Note that 1-9 have to take place very quickly to allow troops time to complete the work intensive 10 and 11. Using the leaders recon as an orders group to war game and complete the plan will speed up 1-9. Remember that a repositioning plan is doomed to failure unless it is rehearsed as a minimum by all leaders and drivers.

FIRE SUPPORT

Lessons Learned: Use Top Down Fire Planning

Problem: Fire plans executed at the company/team and platoon level frequently fail to reflect the brigade or task force commander's intent. The brigade FSO may or may not include targets submitted by forward observers, company and task force FSOs in the brigade fire plan. There often isn't enough time to collect target lists and fire plans from the companies, resolve duplications and redundancies, and consolidate them into a single cohesive plan at brigade.

Successful Tactics, Techniques and Procedures

- Fire planning must begin with the brigade commander's intent. Upon receipt of his intent, the brigade staff develops various courses of action and war games each one. Movement of batteries is the most important (FA) task when wargaming. Ammunition resupply is the second most important aspect. Without waiting for input from company and task force fire plans to arrive, the brigade FSO/FSCOORD must plan fires to support the critical elements of the brigade commander's plan. The FSO disseminates this plan down to the task forces. He also allocates targets, establishes cutoff times, and schedules a window for rehearsals.

- As time permits, FSOs refine the plan by applying formal fire planning techniques. Company and task force FSOs must "bubble up" their fire plans for resolution of duplication and consolidation at brigade.

Lessons Learned: Fire Support Execution Matrix--A Valuable Tool

Problem: Many commanders are unable to synchronize all fire support assets.

Successful Tactics, Techniques and Procedures

- A fire support execution matrix (FSEM), included in the brigade execution matrix, is essential to success on the battlefield. Used properly, the FSEM is a proven tool on the battlefield. The key is to scheme the fires with maneuver, both in the offense and defense.

- A critical aspect of the FSEM is it establishes responsibility for: who fires each target; series, group, etc.; when they fire; and what net they use to call. The FSEM also establishes how JAAT and/or CAS is employed.

Lessons Learned: Length of Target List

Problem: FSOs continue to submit excessively long target lists. Despite the speed at which TACFIRE can process targets and perform tactical fire direction operations, an excessive number of targets quickly overwhelms human capabilities.

Successful Tactics, Techniques and Procedures

- Target lists that consist of quality targets and not quantity are more likely to succeed. These target lists must support the commander's concept. The direct support (DS) artillery battalion commander, in concert with the brigade commander, should restrict the length of the target list to 10 to 15 targets per battalion/task force and 60 or less for the entire brigade.

- The FSCOORD should determine a cutoff time for changes to the target list and fire plan. A reasonable cut off time is five hours prior to crossing the LD or anticipated beginning of defensive operations. In situations where less than five hours are available for planning, the FSO should employ abbreviated (hasty) fire planning procedures as outlined in FM 6-20. Emergency or critically significant operational changes may still occur, but FSOs don't allow routine target list changes.

Lessons Learned: Location of FOs/FSOs

Problem: Frequently cited as one of the problems facing units on the battlefield is disagreement over the location of fire support personnel relative to their supported maneuver commanders.

Successful Tactics, Techniques and Procedures

- The tactical requirement is for the FSO to be responsive to or, in some cases, under the control of the maneuver commander he supports. The key consideration is whether his location enables him to accomplish his mission. If his primary function during a battle is to be the commander's FO, he should be as close to the maneuver commander as possible, while maintaining observation of the battle area. If his mission is to fire a series or group of planned targets as part of the overall fire plan, the FSO must observe those targets at all times and remain responsive to the maneuver commander throughout the entire battle.

- Commanders and FSOs should work together to determine the best location for the observers. They share responsibility for positioning them where they can see the battlefield and contribute to the operation's success. The FO must select observation posts and movement routes to support the maneuver commander's scheme of maneuver. The FSO must apply the factors of METT-T to determine optimal positions for his observers.

Lessons Learned: Voice/Manual Back-Up

Problem: Some units do not have procedures or criteria for determining when to switch to a manual/voice back up when TACFIRE fails. When the TACFIRE system fails, units frequently do not pass control to a mutually supporting unit (MSU) or firing battery FDC. Instead, units focus their attention on trying to fix TACFIRE. TACFIRE operators must remain aware of the battle and recognize situations where it is more efficient and effective to operate in a manual/voice mode than to work on repairing TACFIRE immediately.

Successful Tactics, Techniques and Procedures

- TACFIRE can become a casualty on the battlefield. Units should develop and train techniques and procedures to operate without it. They should establish methods to facilitate the transition from an automated, digital system of tactical and technical fire control to a backup system of manual fire control. The DS battalion and all TACFIRE subscribers must develop procedures if the digital system fails, incorporate them into their SOPs, and train to them at home station.

- All members of the gunnery team must aggressively establish and maintain adequate communications. Degradation of the communications system necessitates additional actions to communications nets.

- Back-up procedures must include a voice fire net to perform tactical fire direction if the shelter goes down and an alternate battalion FDC if the enemy destroys the entire DS battalion TOC. Fire supporters also need a voice fire support coordination net to use when the digital net becomes either too crowded or gets jammed.

- Alternate fire nets are essential for the FOs and company FSOs to use if their DMDs become inoperative.

- The fire direction officer in the battalion TACFIRE shelter must be able and ready to perform manual tactical fire direction (IAW FM 6-40) at any time. The battalion FDO can do this by using a Joint Munitions Effects Manual (JMEMs) or a Graphical Munitions Effects Table (GMET), and guidance contained in FM 6-40. He needs a range fan or range deflection protractor (RDP) to plot the target to battery/firing unit range to ensure his fire units can engage the target with the ammunition on hand. The unit TACSOP must state specific details of how the battalion will revert to voice/manual tactical fire direction. the unit needs to practice during home station training.

Lessons Learned: Effective Use of Mortars

Problem: Units don't use mortars enough during all phases of the battle.

Successful Tactics, Techniques and Procedures

- The task force commander is responsible for employment of the mortar platoon. The mortar platoon leader is the primary advisor in that regard. The platoon leader develops the fire plan for the mortars that supports the scheme of maneuver. He also positions, moves and directs the fires of the mortar platoon.

- The task force FSO is doctrinally responsible for integrating mortars into the overall fire support plan. The task force FSO must work closely with the mortar platoon leader in positioning the mortars. The task force must have a mortar displacement plan.

- One successful technique for movement of the mortar platoon is for them to travel behind a company/team, both for protection and movement control. This technique has the added benefit of providing responsive indirect fire support (especially smoke) to the company they trail.

- Another technique is to place the mortars DS to a subordinate unit for specific missions. The scout platoon in the conunter-recon role or the breach element in a mobility operation are examples.

- Consider using a limited visibility mortar fire plan on dismounted avenues and a daylight mortar fire plan on mounted avenues.

JAAT Employment

Problem: Task forces don't adequately synchronize JAATs

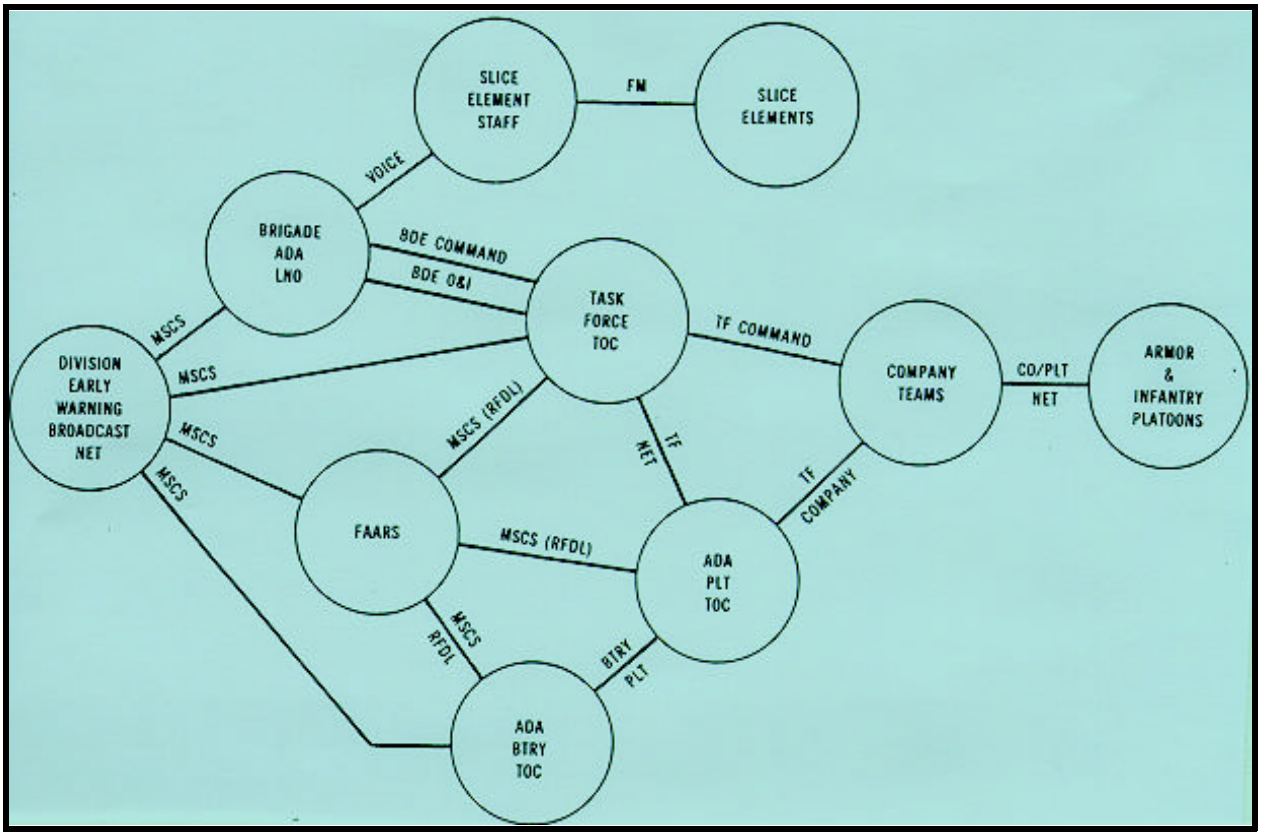
Successful Tactics, Techniques and Procedures

- Attack helicopter battalion observers are becoming our best shooters. They need priority of fires or direct support artillery since quick fire channels are too slow.

- CAS/JAAT works best when planned and executed by brigade. The battalion task force must still plan and recommend employment based on the battalion requirements.

- Be patient with JAAT employment. Those who wait until employment criteria is met have a higher rate of success than those who don't.

AIR DEFENSE



Lessons Learned: Create Redundancy

Problem: The most common air defense problem is ineffective early warning. The problem is not usually within the ADA elements but, in getting early warning to the maneuver units. Early warning is an essential ingredient for combined arms success on the battlefield.

Successful Tactics, Techniques and Procedures

- The brigade and task force TOCs, the ADA Battery and the Forward Area Alerting Radar (FAAR) must monitor the division early warning (EW) net, except when an ADA LNO is present. Then the LNO will accomplish this task.

- Convert the Current Manual Shored Control System (MSCS) to something the maneuver units can understand ("Red Air East"). This is done at the specific TOC receiving the early warning message. This should be an SOP item in every task force.

- When the Brigade LNO receives a track and analyzes it as a threat, he converts it and passes it by voice to all the slice element staff and liaison personnel in the TOC. These elements re-broadcast to their respective elements in the brigade area. The liaison officer further passes the warning immediately over the brigade command and the Brigade Operations and Intelligence (O&I) nets.

- The task force TOC monitors both the brigade command and O&I nets. The air defense cell provides early warning redundancy if brigade fails to send the message. This cell usually consists of the Stinger section sergeant and a vehicle. Depending on his radio assets, he should monitor the dedicated ADA early warning net and, if possible, the division early warning net. He converts the MSCS and re-broadcasts or ensures the TOC passes the warning over the task force command net. This technique allows early warning to enter the task force TOC on three or four nets.

- The FAARs monitor the division early warning net and correlate the information with targets received on the scope. FAAR personnel pass the division early warning tracks plus additional local pop-up tracks using the MSCS format over a dedicated early warning net. All air defense elements monitor this net. Additionally, if the FAAR becomes nonoperational, you can use it as a communication retrans station.

- The ADA battery TOC monitors both the division early warning net and the dedicated early warning net. The battery TOC converts MSCS and sends it out over as many nets as possible (e.g., Btry Cmd, Plt, etc.). The maneuver company/team must re-broadcast the early warning on the company/team net ensuring the platoons and attached air defense asset (Stinger gunners) receive it. Other methods than radio can alert soldiers to an immediate air threat (e.g., flares, smoke, whistles, etc.). Don't underestimate the effectiveness of soldiers with binoculars.

Lessons Learned: Use Protection

Problem: In the offense, Stinger crews in thin-skinned vehicles may not survive. The crews and their basic loads are extremely vulnerable to direct and indirect fires.

Successful, Tactics, Techniques and Procedures

- Stinger under armor affords the crews enhanced mobility and survivability. The following are options, in order of preference, as to which vehicles the Stinger gunners may ride:
    - A dedicated M113. Best option--must have a radio.
    - Infantry company XO's vehicle--only given early warning.
    - FIST track. Poor option. Interferes with FIST mission.
    - As the 4th member of the vulcan squad in a heavy division (FC 44-16R/165). Very limited ammunition carrying capability-vehicle is not designed to carry extra missiles.

MOBILITY, COUNTERMOBILITY, SURVIVABILITY

Lessons Learned: Maintain Positive Control of Engineer Work

Problem: Continuous employment of scarce engineer assets during defensive preparation is difficult to accomplish. Bulldozers are often lost, out of fuel, or broken down within the task force area of operation. Units site obstacles poorly, and don't cover them by fire. In general, the more engineer work required, the less effective that engineer work is. The problems are primarily due to inadequate engineer guidance by the task force commander and minimal coordination between company teams and engineers.

Successful Tactics, Techniques and Procedures

- Mass engineer headquarters forward
  - Habitually employ an engineer company headquarters with each committed battalion task force and involve them in the planning process. An engineer company habitually associated with the task force provides significantly better support than one not habitually associated. If this is not possible, allocate engineer company headquarters IAW the principal of mass. Too often the company engineer headquarters are too far to the rear. This leaves an overburdened platoon leader who must control a heavily augmented engineer platoon and simultaneously attempt to be the task force engineer.

- Fix responsibility for engineer effort with maneuver commanders.
  - Responsibility for success or failure ultimately resides with the maneuver commander. Both engineer and maneuver elements execute engineer tasks. Regardless of who does the work, the task supports a maneuver commander's plan. The simplest method to coordinate intent, logistics support, work party security, siting, etc. is to give the mission to a maneuver company commander and assign engineer support as required.

- Jointly and physically site all engineer work
  - In their hurry to continuously employ themselves many engineers emplace obstacles and fighting positions before coordinating with the commander. Conversely, many maneuver commanders delay deciding on a defensive plan or drastically change the plan so engineers waste work time. The maneuver commander must site the engineer work with the engineer present to avoid ineffective positioning. Engineers advise and then implement. Additionally, the maneuver commander must rapidly finalize his plan.

- Employ engineer execution matrices
  - Engineer execution matrices and clear detailed commander's guidance, continually monitored by the TOC/command group, assures that responsibility stays fixed and receives command emphasis. Below are examples of two types of execution matrices.

WHO UNIT*	WHAT TYPE	TGT# ARTY#	WHEN PRI	START/ STOP	WHERE LOCATION	WHY INTENT	HOW ASSET	LINK UP	FUEL MAINT	CLIV/ CLV
								**	***	***
Tm A	Surv	D111 NA	1	241100 241600	BP41	Primary Psn	D7	CP51	A/4 Engr	NA
Tm B	Surv	D112 NA	2	241600 242100	BP42	Primary Psn	D7 Tm2	CP47	A/4 Engr	NA
Tm B	MF 1-0-0	D113 TBD	1	NA	TBD 1000m	Protect BP42	TmB	CP47	TmB	HHC
Tm B	Wire	D114 TBD	1	241100 242300	TBD	Protect BP42	3/A/4 Engr	CP47	A/4 Eng	A/4 Engr
Tm C	TD 1200m	D115 TBD	1	241100 242300	PA462852 PA465861	Support EA1	D7 Tm1	CP48	HHC	NA
Tm D	MF 1-0-0	D116 TBD	1	241100 241600	TBD 1000m	Support EA1	1/A/4 Engr	CP50	TBD	HHC

* Unit responsible to TF CO for target (security, coverage of construction, etc)
** Link up for asset or CLIV/V
*** Unit responsible to provide fuel, maintenance or transport

ENGINEER EXECUTION MATRIX

Target #	Pri	Type	Location	Emplace By	Secure Force	Direct Fire	Arty Target #	Time Req'd	Time Start	Equipment	Materials	Remarks
D1110	1	MF 1-0-0	ABxxxxxxx AByyyyyyy	D/3-23 (1000m)	A/3-23	A/3-23	CD4342	10 hr	242300		1,440 mines	anchor to contain area by C/3-23
D1121	2	TD 1,200m	ABxxxxxxx AByyyyyyy	TD TM	A/3-23	A/3-23 TOW/B	CD4343	12 hr	242300	D27, D37	1 dozer (2 hr) 250 gal	220 gal at 250600
D1122	2	MF 1-0-0	ABxxxxxxx AByyyyyyy	1/D/1EN (100m)	A/3-23	A/3-23	CD4343	12 hr	242300		10 mines	anchor to Near hill IOE after TD
D1123	2	MF .75m/m	ABxxxxxxx AByyyyyyy	1/D/1EN (1,000m)	A/3-23	A/3-23 TOW/B	CD4343	12.5 hr	242330		825 mines	IOE after TD
D1124	2	MF 1-0-0	ABxxxxxxx AByyyyyyy	1/D/1EN (500m)	A/3-23	A/3-23 TOW/B	CD4343	2 hr	250315		660 mines	lane for TDTM til 251300 then fence
D1130	3	MF .5m/m	ABxxxxxxx AByyyyyyy	B/3-23 (2,000m)	C/3-23	B/3-23 A/3-23	CD4344	12.5 hr	250600		1375 mines	anchor on 2 coord w/PSG
D1140	4	MF .5m/m	ABxxxxxxx AByyyyyyy	A/3-23 (500m)	A/3-23	A/3-23	CD4345	2.5 hr	250300		276 mines	lane open til 5 done

Lessons Learned: Dig In - What Is Seen Is Killed

Problem: The modern battlefield is too lethal for unprotected vehicles or personnel to survive. Unless the terrain provides natural hull and hide or turret down for fighting vehicles or overhead cover for soldiers, dig in. Currently, the average task force (supported by an engineer company) digs 56 vehicle positions, of which 14 are normally effective.

Successful Tactics, Techniques and Procedures

- Especially in open terrain, survivability positions are normally more important than anti-tank ditches. A tank platoon properly dug into two step positions can destroy a battalion. As such, earth moving assets normally focus initially on survivability.

- Since infantry can dig themselves in, normally the infantry works on digging in before assisting the engineers emplace mines, etc. The engineer soldiers normally focus entirely on obstacles. Once the task force completes crew served positions with overhead cover, they reinforce the engineer soldiers emplacing obstacles to the maximum extent possible.

- Employ "basic loads" of Class IV (sandbags, pickets, etc.) with all vehicles to expedite rapidly digging in. The S4 pushes forward replacement basic loads during the transition to the defense in standard infantry platoon packages.

- Employ reverse slopes as much as possible and camouflage frontal parapets for individual/crew positions. This avoids the obvious bunker positions easily seen and destroyed by direct fire.

- Ensure all maneuver/engineer leaders and heavy equipment operators drill the correct construction of fighting vehicle positions at home station. This is an excellent NCODP, ODP, or concurrent training station.

Lessons Learned: Include breaches in All Attack Planning and Training

Problem: Task forces do not adequately plan for breaches. Task forces don't adequately recon, secure, suppress, and obscure prior to breaching. Breaching is an integral combined arms part of all attacks. As such, poorly synchronized attacks cause breaches to fail while poorly synchronized breaches cause attacks to fail.

Successful Tactics, Techniques and Procedures

- Identify the enemy weakness and then mass on it. Verify the situational template before breaching or bypassing. The recon prior to the attack or actions on contact must achieve this.

- Ensure unity of effort. Train breaching as an integral part of all attacks. Push engineers forward. Train all soldiers and units to manually breach. Designate and specify the responsibilities for the assault, breach, and support forces. Conduct a combined arms breaching rehearsal.

- Isolate the enemy weakness with terrain, obscurants, or fire.

- Recon minefields before deciding to bypass, or conduct a hasty/deliberate breach. Most threat minefields are surface laid 200-300 meter wide strips.

- Neutralize enemy fires before reducing the obstacle. Suppress with direct fire (support force), counterfire, and massed SHORAD. Mortars initiate obscuration. Secure the flanks and far side of the obstacle with infantry assault/infiltration, fire support neutralization fires, or destruction fires from an overwhelming support force.

- To reduce the lane sequentially: Recon the minefields forward edge, clear the lane, proof the lane, mark the entrance/exit/sides, then post guides and recovery assets.

Lessons Learned: NBC Defense Requires Discipline

Problem: MOPP gear obviously degrades performance, but it is not a war stopper for well-trained units.

Successful Tactics, Techniques and Procedures

- MOPP decisions, to include unmasking, should be made at the task force TOC after a thorough risk assessment. Just because a M-256 kit indicates an "all clear" in the company area does not mean it is safe to unmask. Contaminants may remain just upwind in another area.

- The Company NBC NCO should be forward with either the commander or XO. He cannot perform his battlefield duties from the field trains. This requires on-the-spot knowledge of terrain and conditions.

- Blood agents break down mask filters, rendering them ineffective. S4s must have replacement filters planned for and prepositioned for quick exchange in case of exposure.

- All units, regardless of command relationship, operating in the task force sector should monitor at least one of the TF nets for NBC warnings. The TF should issue warnings on command, A/L and fire support nets to ensure the widest dissemination.

COMBAT SERVICE SUPPORT

Lessons Learned: Make Your CSS Survivable

Problem: Proactive logistics requires survival. CSS units are not able to defend themselves against most threats found on a non-linear battlefield.

Successful Tactics, Techniques and Procedures

- Think "OCOKA." S4s and other CSS officers can enhance their survivability through careful terrain analysis of proposed locations. Look for terrain that you can easily defend and reinforce with hasty obstacles. Avoid obvious armor and helicopter avenues of approach. Lay out the trains with an eye towards security, defense, rapid dispersion, and withdrawal.

- The commander must consider allocating survivability assets to the FSB based on the factors of METT-T. The majority of the FSB's equipment is thin skinned and highly vulnerable to all types of fires, small arms to artillery. A breakthrough by an MRP can pose a threat to the BSA of disproportionate magnitude. A single tank could lay waste to an entire FSB. Engineer support, air defense coverage, and an allocation of more tank killing systems (Vipers & Dragons) could significantly enhance the survivability of the FSB. Terrain allocation for the BSA should maximize existing cover, concealment, and access to ingress/egress routes. Artillery fire support should be included in the FSO's priorities and updated as the tactical situation changes. Also, combat power should be allocated (on order) to defend the BSA.

Lessons Learned: Focus Forward

Problem: It's very easy to get wrapped up in solving the crisis of the moment and fall into the reactive mode.

Successful Tactics, Techniques and Procedures

- Focus Forward. Proactive logistics requires planning and staff estimates. Staff officers at every level must look forward to the next operation. Using FM 101-2 now can prevent chasing your tail tomorrow.

- Fix Forward. Anything that can be fixed on site should be. Evacuation further to the rear than the unit maintenance collection point guarantees a substantial delay in return of that system to the battlefield.

- Communicate. Information flow must be lateral as well as vertical. Commanders of separate support companies must keep each other informed of tactical developments. Integrate the S1/S4, medical platoon leader, and BMO into the TF planning early. They should go on the leader's recon when possible. For example, the company may get notice of upcoming operations through casualty estimates from TF level. This information could be of use to the maintenance company for setting potential priorities and organizing support teams.

Lessons Learned: Command Trends in the CSS Arena

Problem: Effective CSS requires thorough mission specific planning analogous to that required for successful tactical maneuver. Good SOPs are a vital starting point, but only that.

Successful Tactics, Techniques and Procedures

- Train CSS officers to think tactically:
  We train combat arms officers to look at a piece of ground and envision fields of fire, avenues of approach, and key terrain. CSS officers, who have not received equivalent training, look at the same piece of ground and see a parking lot.

- Train CSS soldiers better in individual soldier kills.
  By and large we have expert and able mechanics, medics, and supply personnel who have only one fault. . . they die in excessive numbers when the shooting starts. Example: The quality of fighting positions usually depends on the imagination of the soldier digging it because neither he nor his supervisors have been trained to construct them properly. The same goes for land navigation, first aid, and chemical defense. Trained soldiers kill; untrained soldiers die.

- LOGPACS Work:
  The active participation by NCOs in the company logistics team has freed up the officer chain to plan for future operations. LOGPAC planning needs to emphasize content, quantities, and organization.

- Push vs. Pull System of Supply (CL III, IV, & V):
  Logisticians must be proactive, anticipating needs and pushing supplies forward to sustain subordinates in continuous operations. The same is proving true for brigade and division logisticians now that we are conducting brigade operations. Experienced S4s can frequently be overheard saying something like the following to inexperienced company commanders: "Tell me what you have. I will then tell you what you are going to get based upon the established priorities."

- Include CSS personnel in tactical planning process.
  For example: when wargaming or planning upcoming operations, the brigade commander must include the FSB Support Operations Officer. This officer is akin to the FSCOORD from the DS Artillery Battalion. By including the FSB Support Operations Officer in the planning process, several advantages are gained:
  --An enhanced understanding of the brigade mission by the FSB.
  --Avoidance of overstressing the FSB by requesting support in excess of the FSB's available capability.
  --Identification of reinforcing CSS requirements for the FSB from DISCOM/Corps.
  --Identification of priorities of support by unit and type of support.
  --Identification of rear battle implications of the operation on the FSB.
  --Identification of tactical restrictions on CSS operations, terrain, roads, weather, etc., in the brigade operation.
  --Tailoring of support to most effectively support the brigade.

COMMAND AND CONTROL

Lessons Learned: Manage Time Wisely

Problem: Units have immense challenges, both executing plans/orders and synchronizing combat power. Many units spend most of their time producing the order or continue to significantly change it. Units tend to do the easy, familiar things first and put off doing harder, unfamiliar, yet critical tasks. Many subordinates understand their orders differently than intended due to diverse backgrounds. Finally, many subordinate units can't execute their missions because the concept of operation didn't adequately address subordinate capabilities and limitations.

Successful Tactics, Techniques and Procedures

- Standardize SOPs within the division:
  Standard division-wide SOPs reduce staff coordination time and greatly simplify orders so long as all division units train to the SOP as a standard. SOPs simplify cross attachment and minimize the amount of specific instructions in the order. This allows the task force order to focus on the concept of operation. Successful units internalize these SOPs through repetitious training at home station to make the procedures second nature.

- SOPs are not substitutes for experience and initiative. In order to be effective, they must be flexible enough to be modified by the factors of METT-T.

- Establish a critical task list:
  Adhere to a disciplined system of time management. Someone must establish a timed critical task list based on each mission and then enforce it. The 1/3-2/3 rule is a guide but METT-T dependent. While, in other cases, availability of daylight for preparation is the key. "Better is the enemy of good enough." There is a time beyond which perfecting the plan will seriously disrupt subordinate planning and preparation.

- Push logistics with the warning order:
  Concurrent with the warning order push standard logistics packages to subordinates. Don't wait for the OPORD or subordinate requests. Transportation is scarce and CL IV/V mission loads are enormous. S4s determine unique logistics requirements based on standard missions (such as offense or defense) in garrison. Then they organize standard (SOP) means to transport and distribute this material. During operations they:
  --Confirm higher push packs on receipt of higher warning order.
  --Allocate these push packs to subordinates IAW SOP.
  --Request thorough output of additional required material to lower echelons based on the OPORD, planning refinements and subordinate requests.

- Guidance to the staff:
  One of the best forms of commander's guidance is rough maneuver and fire support graphics drawn by the commander and given to the staff to focus staff planning.

- Wargame with the entire staff:
  Normally, the commander wargames with his XO, S2, S3, S1/S4, FSO/FSCOORD, engineer and air defense officer (and aviation LNO/commander, if applicable). The wargame identifies the advantages/disadvantages of each course of action and how to best employ the capabilities/limitations of each operation system. This avoids massive and continual changes to the concept of operation which disrupt preparation activities. This also ensures that the entire staff really understands the course of action. Time available clearly limits the extent of the wargame. Note: At brigade level include the FSB operations officer in the wargame.

- Minimize task organization changes:
  Teamwork is generally more important than a slightly better task organization. Last minute task organizations result in units where the "outsiders" are like red-headed stepchildren. Any task organization change must allow time for movement, link up, coordination, rehearsals and team building. Avoid frequent minor task organization changes. If the situation mandates a change, do it as early as possible. Building an effective task force or company team takes time.

- Initiate movement early:
  Recon and quartering party movement are time sensitive. Early recon drives success. Maximum time for quartering parties greatly simplifies movement to and occupation of forward assembly areas or attack positions.

- Employ clear/concise written orders:
  Clear written orders greatly reduce the fog of war to tired leaders. They provide a checklist for exhausted leaders to remind themselves what their mission and the commander's intent really is. Execution matrices, similar to the fire support execution matrix, are a method to simply portray the plan in a concise manner. The limiting factor on the conciseness of the order is how well the unit understands the commander's intent. An unusually well trained team can execute a complex plan with minimal guidance. Personnel turbulence and training distractors normally mandate longer orders.

- Use Briefbacks:
  While wargaming ensures clarity and the ability to execute at the staff level, backbriefs and rehearsals accomplish the same with subordinates. Immediately after the commander issues the order, his subordinates backbrief the commander on their tentative concepts of operation. If these are in line with the commander's intent, his subordinates understand the order. If not, the commander clarifies the plan. Ensure all slice elements backbrief. Different branches and services speak different languages.

  During preparation, the commander meets subordinates individually or together on the battlefield. Here, his subordinates backbrief their concept based on their actual recon. This ensures that any minor changes a subordinate implemented to make the plan fit ground truth still support the commander's intent.

- Rehearse:
  Rehearsals are critical to the successful execution of the operation. "I was amazed at how well we performed when we rehearsed the plan," to quote a recent NTC battalion commander. The rehearsal should be as complete as the situation allows. In general, there are three levels of rehearsals: sand table exercise, walk through, and full dress.

  In the sand table exercise, subordinates move unit markers on a sand table. The subordinates include the commanders as a minimum. Including commanders, fire support officers, and supporting slice leaders is better.

  In the walk through, subordinates rehearse on a large sand table where they represent their units. At battalion task force level, this walk through can include platoon leaders.

  The full dress rehearsal is the ideal. It includes the whole task force. In the defense, where the defender owns the ground and has several options to execute, the full dress rehearsal in MOPP4 is key.

  Some units employ several rehearsals: maneuver, fire support, and combined arms. As a minimum, do the combined arms rehearsal.

Lessons Learned: Plan for Command Succession

Problem: Commanders often die or have their command vehicle shot out from under them at critical moments in combat. Whether dead or dismounted, subordinates usually don't notice right away or are unsure of what action to take. Nothing triggers the command succession procedures, and the enemy seizes the initiative and breaks the task force decision cycle.

Successful Tactics, Techniques and Procedures

- Units must practice command succession procedures in home station training. The procedures must have effective trigger mechanisms, and units must practice under realistic circumstances. With no advance notice, subordinate leaders need to know by role who will take charge, what to do, and how to act on the commander's intent until the succession is complete. The commander must train the XO or S3 to assume command in the midst of a battlefield's chaos. Designate vehicles to pick up commanders and key staff if their vehicles are disabled or down for maintenance.

- The task force commander needs a wing man. The S3 can do this when he positions on the same axis. The ALO is also an option when properly briefed and trained on this additional responsibility. The wing man should provide protection, act as a backup vehicle, and initiate the command succession process when the commander's tank/track is hit.

Lessons Learned: Commanders Must Visualize the Battlefield
Problem: Some commanders have difficulty in "seeing" or visualizing the battlefield. Without a clear mental image of what is occurring in his zone or sector, a commander finds it impossible to synchronize the employment of the combat multipliers at his disposal.

Successful Tactics, Techniques and Procedures
- Study enemy order of battle, doctrine, and tactics. A thorough knowledge of the enemy will allow a commander to visualize enemy actions as certain cues are seen or reported.

- A thorough IPB, to include verification of the situation template by recon assets, will add to the mental picture.

- Detailed, yet concise reports from trusted agents or subordinates regarding both friendly and enemy movements or activities throughout the course of the battle is a necessity.

- The unit tactical operations center must forward concise reports to the commander on information gained from higher and adjacent units. This must include both friendly and enemy activities.

- Personal reconnaissance of battlefield must be done for each new mission regardless of previous familiarity with the terrain.

- Backbriefs and rehearsals provide a commander a visualization of what his subordinate units are/or should be doing at any point in the battle.

- The commander must plan and rehearse his own position and movement on the battlefield as carefully as is done for the overall TF plan. He must be forward to personally see critical points in the battle, yet protected in order to survive.

- Finally, practice and more practice is a necessity in learning to "see" or visualize the battlefield. No opportunity can be wasted to gain experience in this most critical warfighting skill.

Lessons Learned: Recognize "The Soldier"
Problem: It is very common for leaders to get wrapped up with what went wrong, what is going wrong, and what might go wrong. We tend to overlook all the things that went right because soldiers did great things.

Successful Tactics, Techniques and Procedures
- Seek out and reward excellence. Don't wait to get back to garrison. That little bit of ribbon and tin, presented on the field of battle in front of a small formation of a soldier's comrades, has more meaning and will have more impact on a unit than a more prestigious award given a month later in front of a division's worth of strangers.

- One of the purposes of a decoration is to encourage others to perform well. Timely awards ensure impact on others.

- An awards system which requires going back to garrison is broken. In war we will not have that luxury to make it work.

EXECUTIVE SUMMARY

INTELLIGENCE & ELECTRONIC WARFARE
Include Commander & Staff in IPB
Rapidly Recon
Maintain Security
Use the Field Artillery S2

MANEUVER
Use Dismounted Infantry
Shoot Them in the Back
Use Battle Drills
Mission Units With Engagement Areas, not Battle Positions

FIRE SUPPORT
Use Top Down Fire Planning
Employ the Fire Support Execution Matrix
Use 10-15 Targets Per Task Force
Locate FOs/FSOs by METT-T
Stress: Voice/Manual Back Up
Use Mortars
Employ JAAT

AIR DEFENSE
Employ Redundant Early Warning
Protect Stinger Crews

MOBILITY, COUNTERMOBILITY, SURVIVABILIT
Positively Control Engineer Work
Dig In, What Is Seen, Dies
Include Breaches in All Attack Planning and Training
Maintain NBC Discipline

COMBAT SERVICE SUPPORT
Make CSS Survivable
Focus Forward
Use LOGPACs
Employ the Push System

COMMAND AND CONTROL
Manage Time Wisely
Plan for Command Succession
Learn to Visualize the Battlefield
Recognize the Soldier